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Shooting RoboCop 4

Big city crime has turned Old Detroit into a combat zone. Decent citizens can no longer venture forth onto the streets, day or night, and even police officers are prime targets for murder and mayhem. Clearly something must be done. The answer as proposed in Jon Davison's production of *RoboCop* is a new breed of urban crimefighter — half man, half machine, all business. Engaged to create this cyborg superhero were film director Paul Verhoeven, actor Peter Weller and makeup effects artist Rob Bottin. Also contributing to the futuristic ambience were ED 209 creators Phil Tippett and Craig Davies, special photographic effects supervisor Peter Muran, matte artist Rocco Gioffre and a host of others who discuss in detail their experiences on this most explosive of box-office hits. *Article by Paul M. Sammon.*

Inside Martin Short 42

For most directors, getting inside one's characters is an intellectual exercise. But for Joe Dante, *Innerspace* represented a literal opportunity to explore on film the inner workings of a human being — specifically, supermarket clerk Jack Putter who, as a consequence of a miscarried experiment in miniaturization, finds himself the unwitting host to a microscopic submersible pod manned by test pilot Tuck Pendleton. Enlisted to design and produce the *Innerspace* footage was visual effects supervisor Dennis Muren of Industrial Light and Magic. Mixing anatomical realism with dramatic fancy, Muren and his associates produced both miniaturization effects and macroscopic excursions through the innermost recesses of actor Martin Short's eyes, ears, blood stream, stomach and lungs. *Article by Janine Pourroy.*

FRONT COVER — A cyborg crimefighter patrols the streets in *RoboCop*.
The *Kraken II* journeys through a human body in *Innerspace* — BACK COVER.

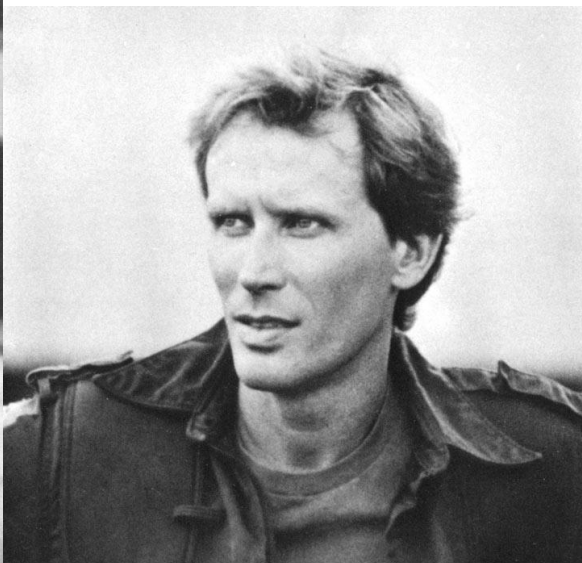
SHOOTING ROBOCOP

article by
Paul M. Sammon







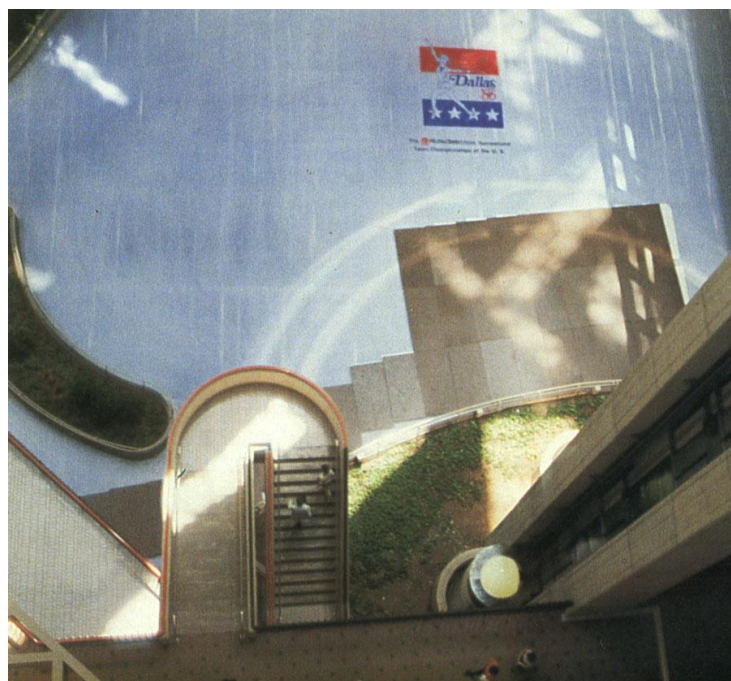


all the images fly in," Conn related. "But of course, before we could treat those images, we had to shoot the newscasts themselves — which we did at a place in Los Angeles called American Video Factory. All the MediaBreaks were shot in Betacam and then edited in component at Visual Eyes, which is a facility in Santa Monica. That material was then transferred to film directly from the component Betacam edit master. Component is a half-inch format — usually Betacam, although there are other ones — where the chrominance and the luminance signals are separate, thus giving you access to the colors directly before the video material is turned into an NTSC signal for normal recording and broadcast purposes. So by shooting in component and staying in component all the way, there was never any reason to introduce NTSC and coding and all the little artifacts that come along with it.

"Once we had our video of the newscasters, Jim Rodnunsky and I were able to go in and get that flying image effect. Jim was video editor on *RoboCop* and had a lot of input into these areas. The flying images were all done with an ADO and an Abekas. An ADO is a common video device used for moving things around in the video screen. An Abekas is a digital disk recorder — also called a DDR — which allows you to go as many generations as you want in digital without losing definition or quality. So you can build one screen and then move on and build the next screen and the next one and the next one, and you're still only one generation down. That's how we did the opening. I think we had twenty-five screens in that sequence, though you barely see the outside ones in the 1.85 projection ratio. After a lot of planning, that was all done in one day."

During the initial MediaBreak, the futuristic world of *RoboCop* is introduced via footage of a by-now functioning Star Wars defense system represented by video stock footage taken from a Public Broadcasting System documentary on the Strategic Defense Initiative. We are also introduced to the smarmy joys of Yamaha's new artificial heart. But viewers just as quickly learn that a cancer is eating at the heart of Old Detroit — the cancer of crime. Someone is killing dozens of policemen — and worse, no one seems to know why.

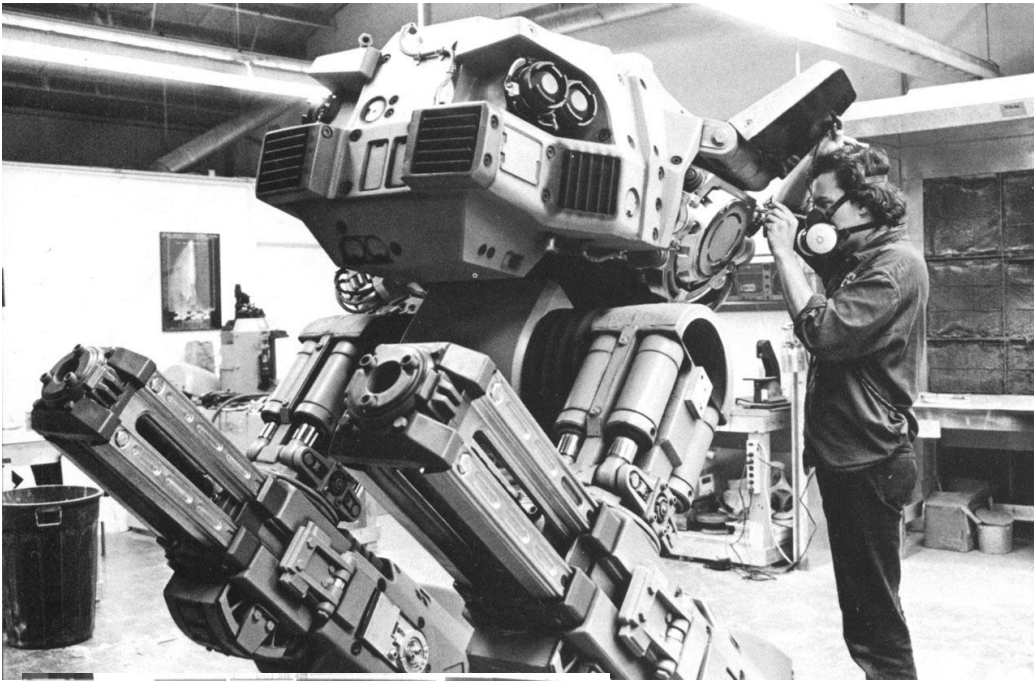
Cut to one of those policemen, the aforementioned Murphy who has recently been reassigned to the Old Detroit precinct. In this battle-hardened environment, guardians of the law carry high-tech armament and wear futuristic body armor — actually available, off-the-shelf protection obtained from a company named SWAT Viper. No longer a public institution, the police department is run on a contract basis by OmniConsumer Prod-

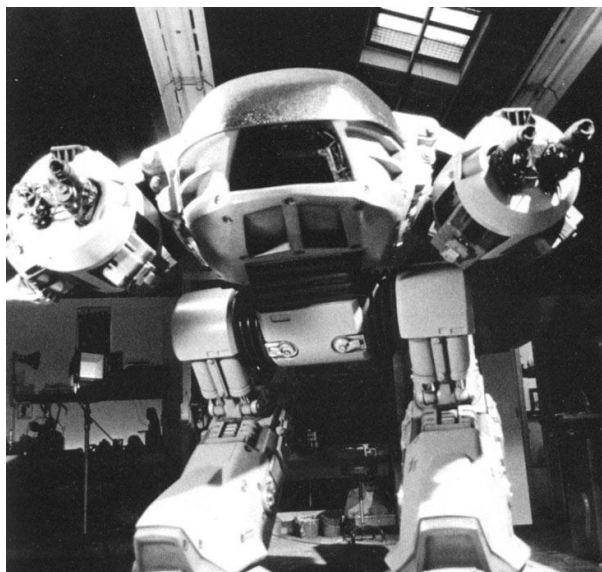
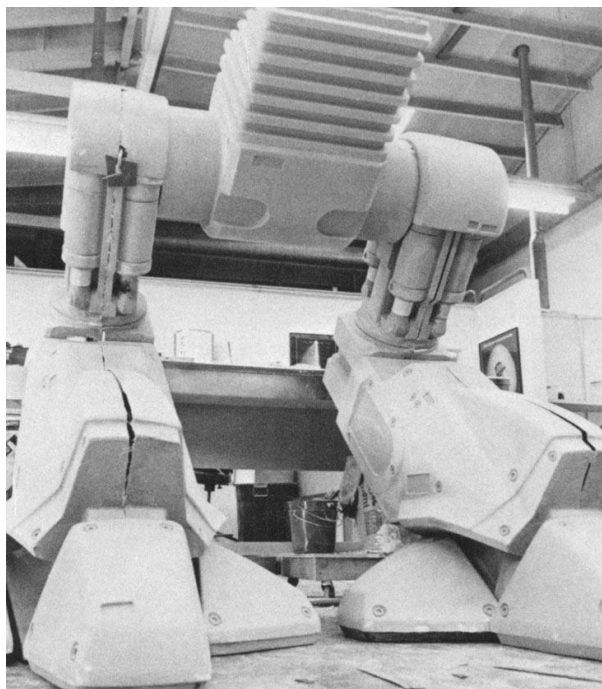


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Seven matte paintings grace the film — all but one of which were done by Gioffre who also produced paintings for *Close Encounters of the Third Kind*, *Star Trek - The Motion Picture*, *Gremlins*, *The Adventures of Buckaroo Banzai* and *Twilight Zone - The Movie*. A founding partner of Dream Quest, Gioffre left that burgeoning organization in 1986 to form his own company offering not only matte painting work but stop-motion effects as well. "The usual technique that I employ," said Gioffre, "is original negative compositing. This involves going on location with a camera crew, very sturdily locking off your camera and then masking off the portion of the frame which will later be replaced with the painted artwork. On *RoboCop*, the paintings themselves were about thirty by forty inches in size — which is about the norm for a locked-off shot. They were done on masonite, my preference over glass. Glass is a bit heavier than masonite — and if you drop a glass matte, there's not only a danger of injury but more chance that you'll also lose your whole painting. If you drop masonite, you might scratch your painting — but that's it. Usually I do my paintings in oil. Every once in a while I'll do some work in acrylics, like an underpainting; but primarily I prefer brush painting and oils — no air-brushing or anything like that."

In addition to the exterior shots, a number of matte paintings were employed to depict the interior of the OCP building where glass elevators silently ascend and descend above a busy central atrium composed of stairwells and plazas. "The trickiest shots on *RoboCop* were the down elevator angles," Gioffre resumed. "The plate photography on that was done in the interior of the Plaza of the Americas in Dallas. To do my masking, I had to shimmy out on a diving board type thing about five stories up, because the camera dolly was pushed out over the edge of a balcony and we were looking straight down. Of course, once I matted in the painting around that footage, it looked like it was closer to eighty stories down."

It is during the first elevator scene that the audience is introduced to Bob Morton (Miguel Ferrer), a ruthless young executive who will soon be the major catalyst in the *RoboCop* construction process. "Although most of the matte shots were original negative, the two angles of Morton in the glass elevator — up and down — are actually dupe shots because we needed to get a much wider angle than we could accomplish with the lenses that we had on our plate camera. Ultimately, those were done as reduction dupes. In other words, the live-action photography was taken and placed in an optical printer and reduced by about fifty percent to fit into the painting. Ute Leonhardt at Praxis Film Works — Robbie Blalack's company — did the reduction dupes on that. Then I took those and comped them with the paintings at my own facility. For the live-action element of the glass elevator shots we primarily used just one small circular

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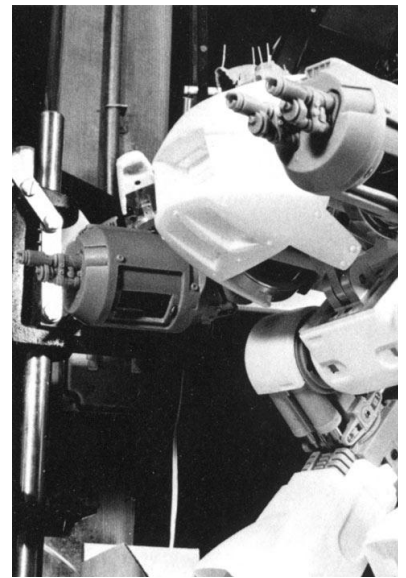
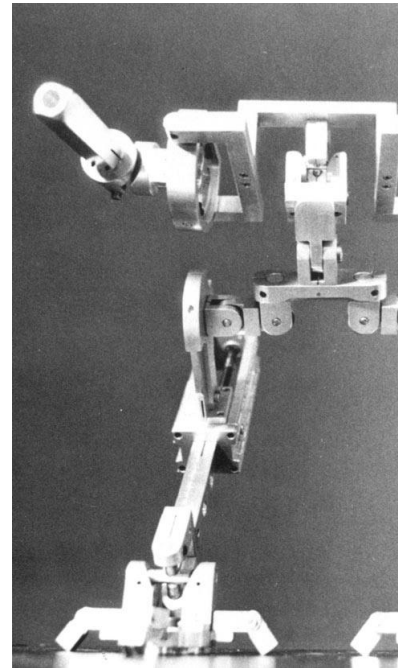
Shots of ED 209 moving about were achieved via stop-motion animation under the direction of Phil Tippett. Working from a design by Tom St. Amand, machinist Blair Clark manufactured two twelve-inch-tall puppet armatures. / The armatures were then delivered to Craig Davies who precisely duplicated his full-scale robot in miniature. Fully assembled, the puppet awaits its final paint job. / Phil Tippett animates ED 209 entering the boardroom. To produce the shots required in a timely and cost efficient manner, two stop-motion stages were manned simultaneously and rear projection process work was employed throughout. / Harry Walton sets up an over-the-shoulder shot in the boardroom as ED 209 prepares to bungle an important demonstration of its law enforcement capabilities. / Warning countdown nearly completed, the

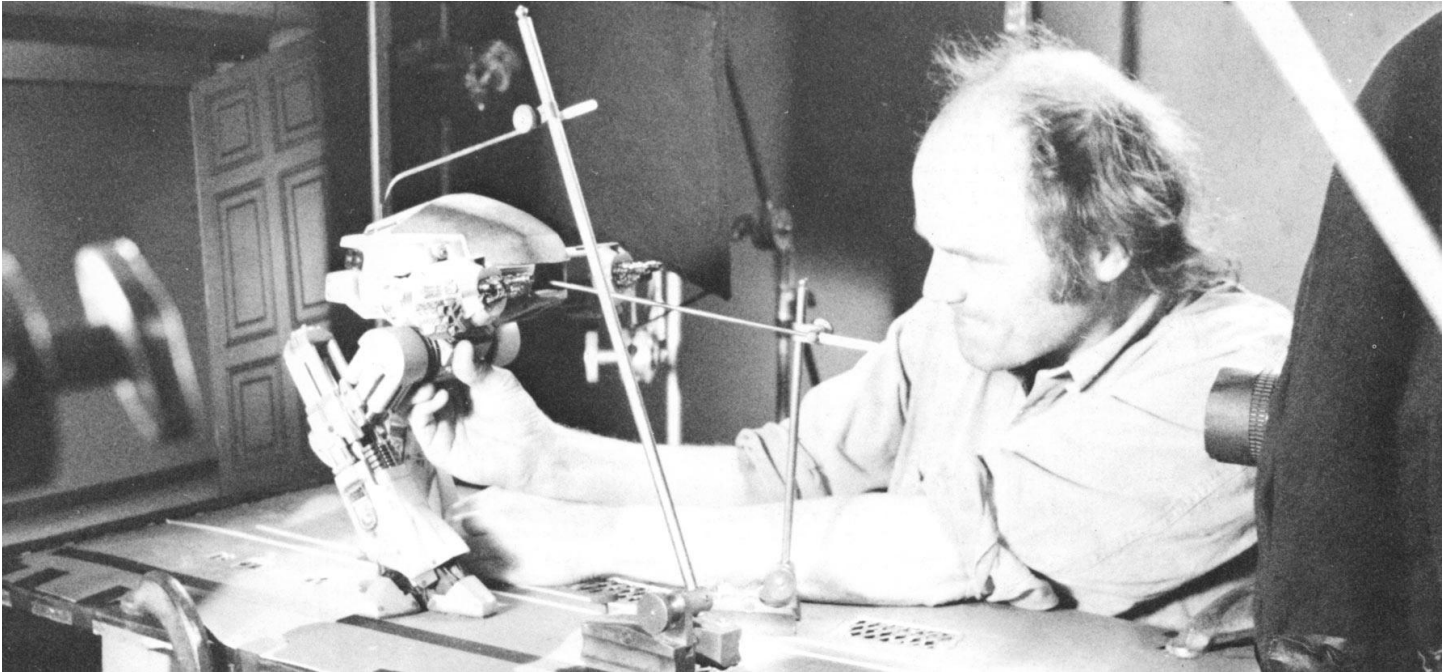
shots, they are ones that I painted in." Gioffre assumed about half of the compositing chores of the live-action and matte painting elements at his own facility, while passing on the remaining comps to Michael Karp and Don Baker at Praxis.

Morton's elevator deposits him in the OCP executive boardroom, a location set built on the fifty-seventh floor of Dallas' Renaissance Tower. (Most of the film's other interiors were erected within Las Colinas, a local Dallas soundstage facility.) Once inside, Morton and the other corporate executives are treated to a briefing by Security Concepts vice president Dick Jones (Ronny Cox). The presentation begins with a multi-video array fed through a literal wall of monitors, all detailing the endless areas in which OCP has stuck its greedy corporate fingers. "Originally there were going to be a great many more video monitors scattered around *RoboCop*," commented Jon Davison. "It's something that Paul Verhoeven wanted to do a lot of. But I tried to convince him in preproduction that monitors in the background of every shot were ultimately going to take more time than they were worth. So Paul sort of simplified that after awhile — but he certainly got his monitors during the boardroom sequence."

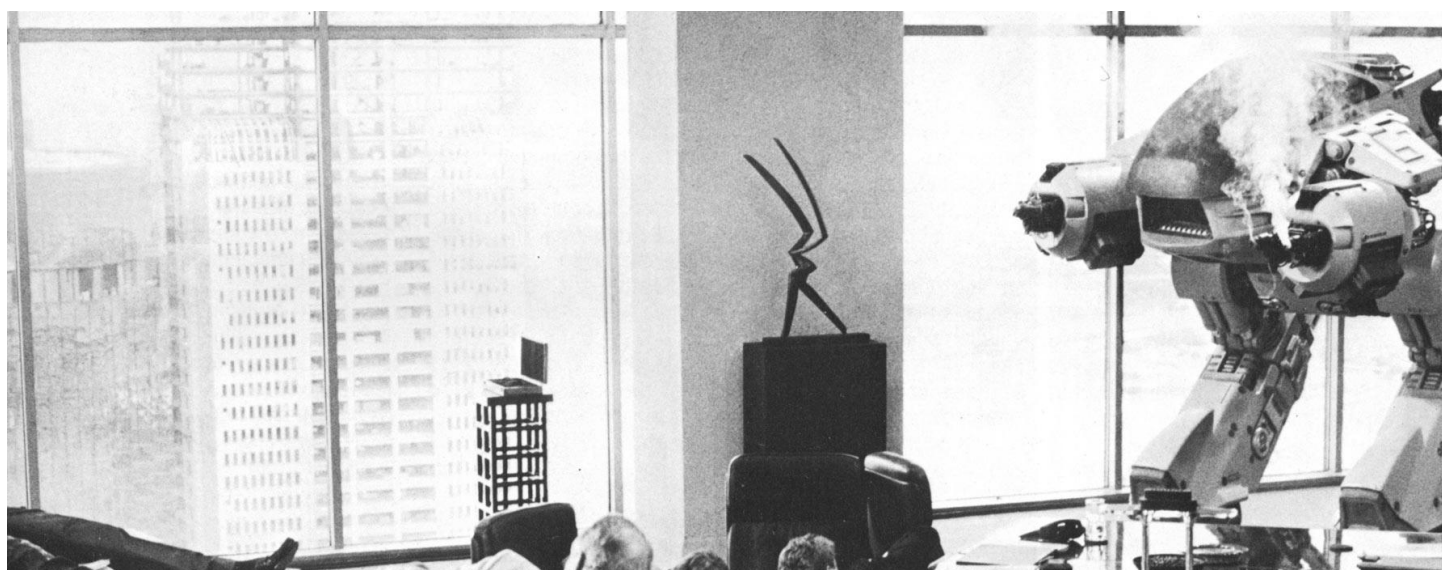
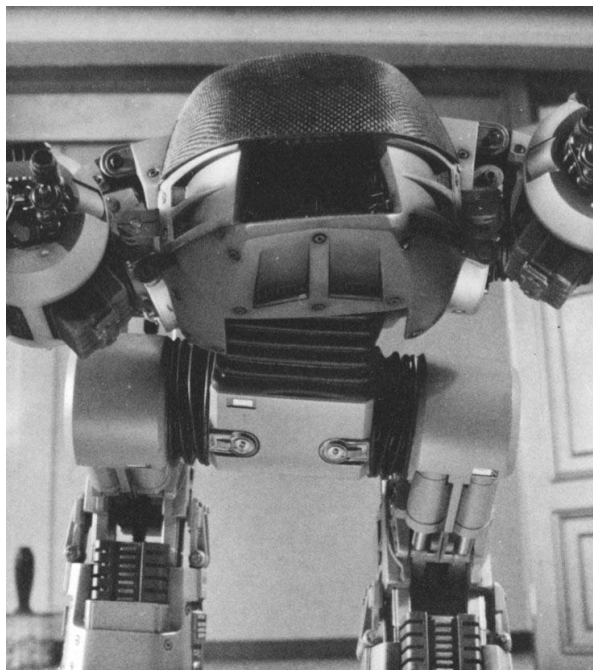
More than two dozen Proton monitors were employed on the set, with imagery played back on a battery of three-quarter-inch tape machines handled by video technician Jeff Santlofer. Although the 'video wall' behind Jones seems alive with separate shots during the sequence, the images are actually repeated segments from only a dozen stock video featurettes constantly being recycled to different monitors at different times. This video stock footage was supplied in part by Intervideo, a company which also provided the playback units and monitors for the sequence. Animated titles superimposed over the images were generated by Peter Conn. Surprisingly, the briefing sequence was shot without video interlock, a system which reduces video from its normal thirty frames per second down to a motion picture compatible twenty-four frames per second. "We didn't use synchronized playback because frankly we didn't have the money," explained Davison. "So we just let the playback units run on in thirty-frame video and adjusted the shutter in our camera to get rid of the roll bar. Except for one sequence — Murphy in the Compulab — we never did interlock."

The purpose of Dick Jones' presentation is to announce OCP's embarkation on the Delta City project — a gigantic urban redevelopment complex targeted for the very heart of Old Detroit. Gesturing toward the architectural model spread out near the central conference table — a model constructed under the supervision of art director Gayle Simon — Jones stresses that before work on Delta City can commence, the wave of rampant crime sweeping Old Detroit must first be stopped. Dramatically, Jones then ushers in his division's new automated security









The brutal execution of Murphy by the Clarence Botticker gang provides OCP with the organic components needed to launch their alternate RoboCop program. To make the officer's death as torturous as possible, makeup effects artist Rob Bottin provided numerous prosthetic devices. Among them was a mechanical hand equipped to blow apart when hit by a simulated shotgun blast. / Peter Weller sits wearily while effects technicians affix an artificial limb to his shoulder for a subsequent shot in which his whole arm is blown away. / For the final scene in which Murphy is shot in the head, a full torso capable of complex facial and body movements was employed. / As seen by RoboCop during his transformation, OCP executive Bob Morton (Miguel Ferrer) is given a demonstration of the cyborg's mechanical arm. The 'robovision' effect — developed by Peter Kuran at Visual Concept Engineering — entailed compositing live-action footage with two sets of finely-drawn lines, slightly offset. Produced in the process was a moiré that gave a jagged-edge look to the live-action imagery. /

hundred-hour work weeks, sleeping and eating in the shop — all the little things that seem insane now. In fact, that exhaustion is reflected in one of the design elements — ED's feet. It's always been my conviction that in film the area of camera concentration for people or robots is usually from the waist up to about a foot above their heads. So that area is where I concentrated everything. And the feet, just because there were only two people building ED and we were killing ourselves and we had to skimp ... well, the feet were where we skimmed. I didn't have any way of knowing at the time that the filmmakers were eventually going to be highlighting ED's feet as it tries to go down the stairs. But Paula and I had to sleep sometime, so we made the feet as minimal as possible while still trying to fulfill the obligation of 'big robot foot!' Luckily, the petal design I came up with seemed to work out."

ED 209 was also replete with heavy armament. Conceived as having a modular weapons system, ED's left hand was equipped with one 20mm gun and had been further retrofitted with three heat-seeking missiles. The right hand held two additional 20mm guns. And in a clever touch — never used in the film — a pocket behind the robot's head was equipped with twin launchers which could be loaded with either mortars or gas grenades for crowd control. The large-scale ED 209 was also articulated and fully posable, although only a brief illustration of this capability occurs when the full-scale ED turns its head at the approach of RoboCop's turbocruiser near the end of the film. Finally, only one full-scale ED 209 was built for *RoboCop*. Not only did it survive the often punishing shoot, but the large prop was later touched up by Davies and sent out on a promotional tour by Orion Pictures.

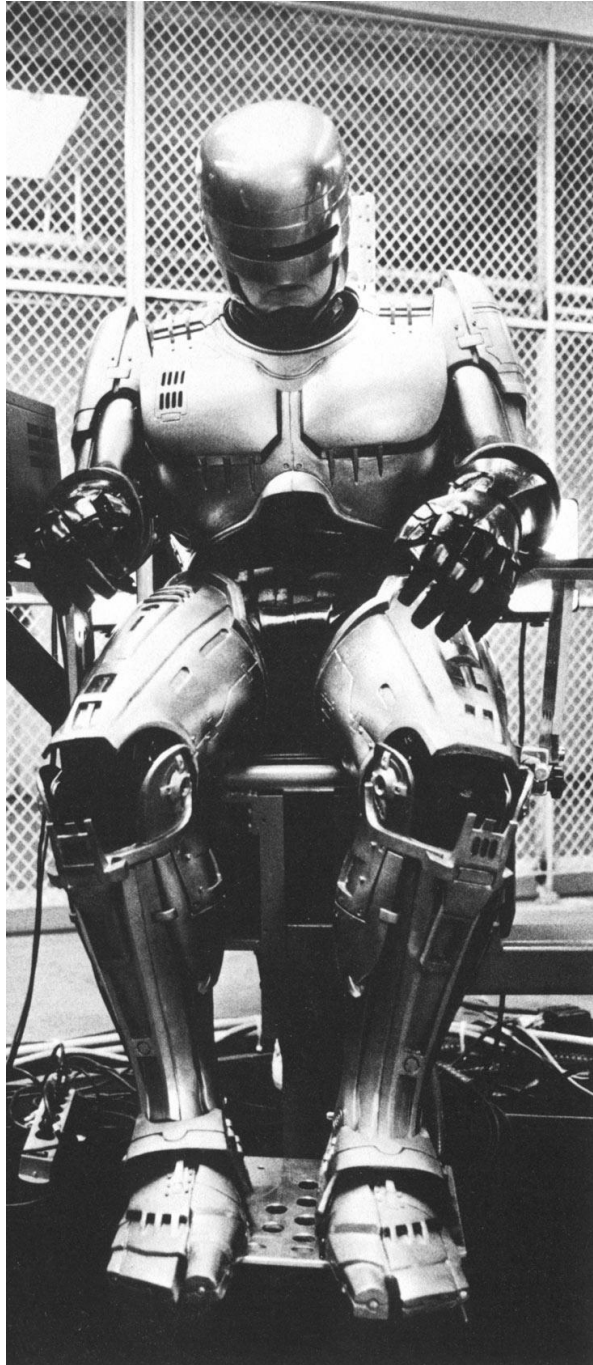
Davies' ED 209 involvement did not end with the full-scale prop, however. In an unusual move, Tippett hired Davies to produce effects storyboards for the stop-motion sequences and to construct the carapace which would fit around the foot-tall ED 209 puppets. "Because of our tight schedule," said Tippett, "it became very clear that we were going to be forced to use two stop-motion setups, both going simultaneously. So two ED 209 puppets had to be built. Tom St. Amand, who designed the ED armatures, had to devise a stop-motion armature around a configuration that was not animal, but very machinelike. Consequently, he spent a great deal of time making sure that the armature would support the weight of the robot and that all of the various elements would work together. Then Blair Clark machined that armature and turned it over to Craig — who had already constructed the full-scale ED 209 — for final assembly of the miniature models."

"For the puppets," said Davies, "I started out by using the same process I had used to build the big ED 209. I still had all the drawings of the cross-section head, so I just tweaked them







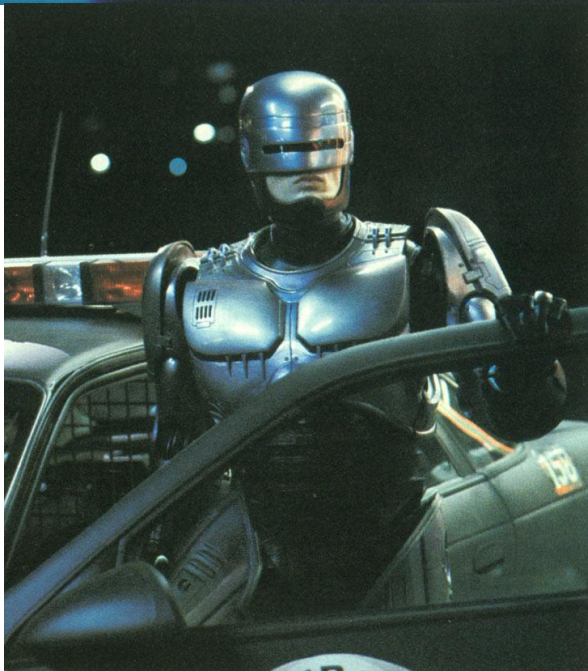




staccato realism are explosive flashes coming off the 20mm guns — flashes built into the sequence by Phil Tippett and Craig Davies. "The flashes were all done in-camera with two passes," explained Tippett. "Craig had come up with a system of using strobe lights from a regular Nikon flash. First we removed the little strobe units, which are almost like neon tubes. Then we shot ED doing whatever it was he had to do and very carefully gauged where the guns were in a particular frame. That was the first pass. We then backwound the camera and put the robot back in its pregauged start position very carefully. At this point we'd black out the set and fit these little flash strobe units into ED's gun. Around the flash we would wrap an appropriate gel, like an orange gel. Over that we would put cotton. By doing a diffusion test we were able to come up with a sufficient amount of degradation on the cotton so that when the strobes were fired the cotton looked just like flame. So for a blast on one frame we would open the shutter, press a button and ignite the flash — which would be indelibly burned into the film on the proper frame. Then we'd put the lens cap on and advance the camera two more frames in darkness, take the cap back off and position the arm of ED 209 where it needed to be for the next gunshot. We never thought of physically removing the puppet, because when the flash went off we wanted to get the proper residual reflections all over the figure itself. Also, while we were shooting the background plate concurrently with the first element of the puppet, we would collectively flash areas of the background as well to make it marry a little bit better. That might be a matter of taking an inky and shining it on the rear projection screen, rheostating it to the proper intensity, putting a gel on it and then turning that inky on and off for one frame. I thought the results were pretty good — you don't see a whole lot of stop-motion gunfire."

With the death of Kinney, and Jones now out of favor with the Old Man (Daniel O'Herlihy), Morton quickly steps forward and announces his backup program — RoboCop. Given a go-ahead by the Old Man, Morton puts the project in motion. His only obstacle is the lack of one critical component — a human body to merge with that of an automaton. At that very moment, however, the missing 'component' is involved in a wild car chase as Murphy and new partner Anne Lewis (Nancy Allen) careen after a van belonging to Clarence Botticker (Kurtwood Smith) and his gang — the same gang responsible for the wave of police killings. Trailing the urban outlaws to an abandoned steel mill, Murphy and Lewis split up. Inside the crumbling plant, Murphy encounters two of Botticker's hoods, shooting one before the rest of the gang gets the drop on him. What follows is the most excruciating segment in the film as the helpless Murphy is taunted and tortured before being literally blown to pieces with shotguns and pistols. "We consciously

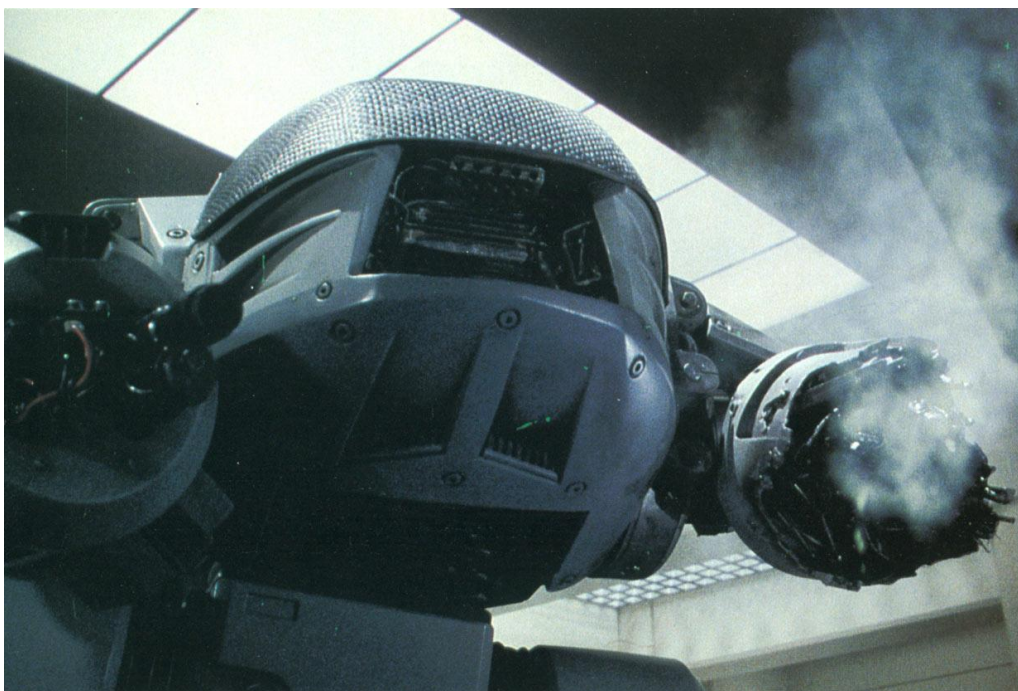










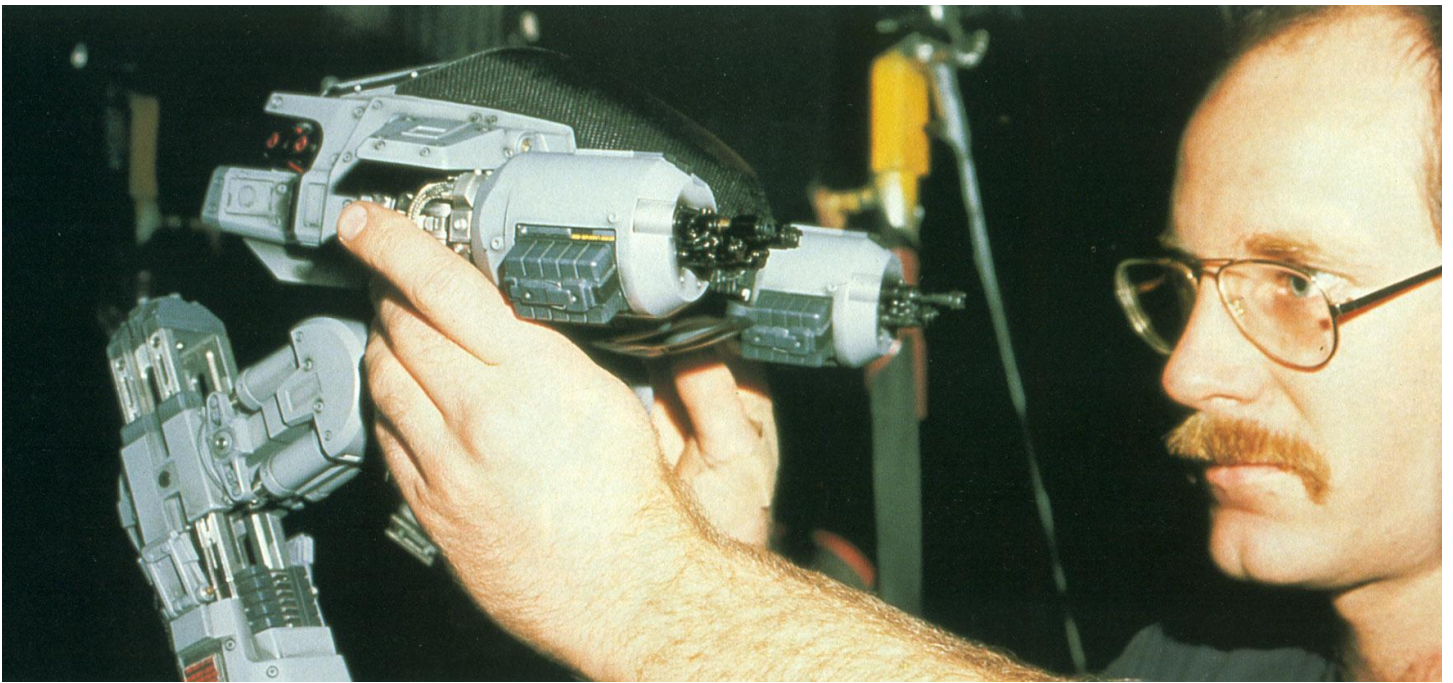
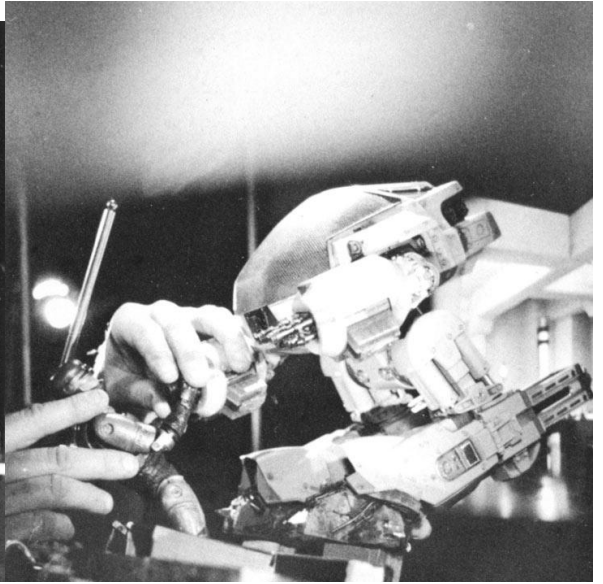


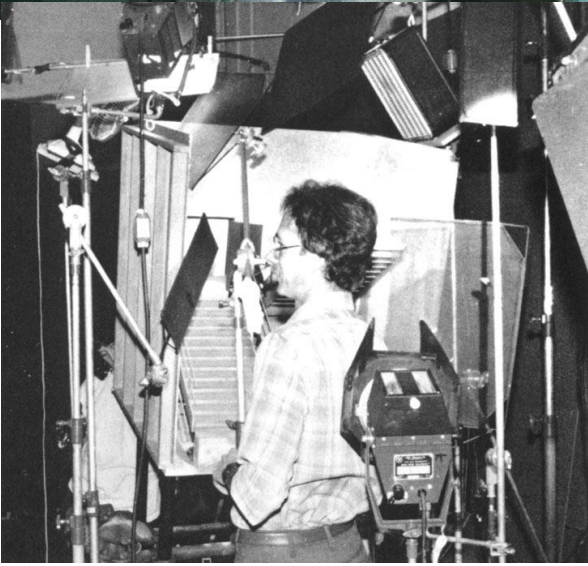
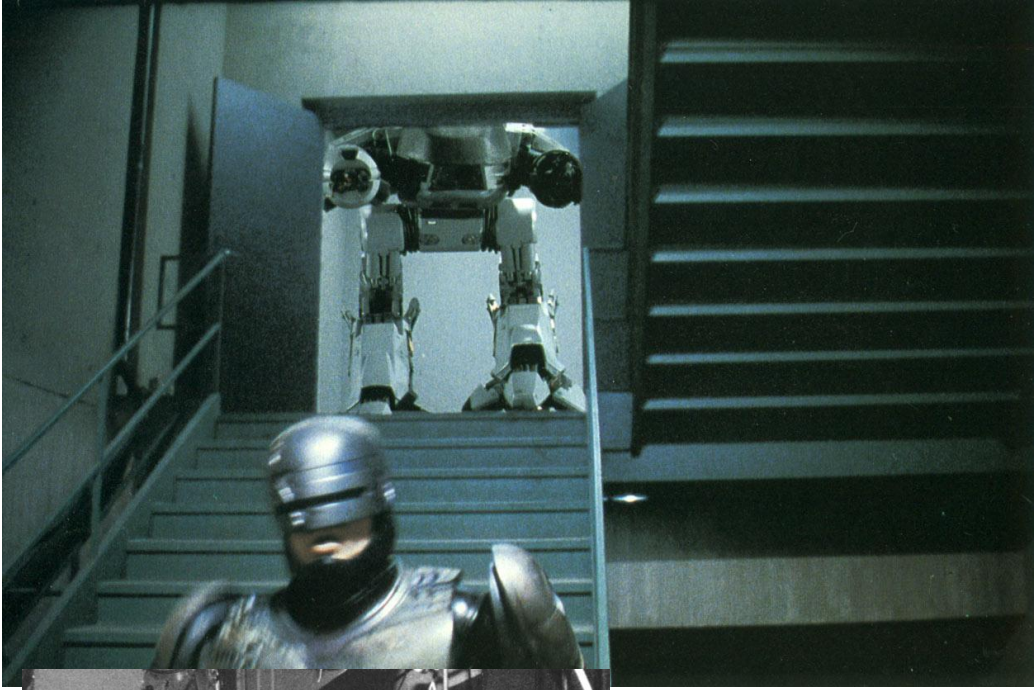
by this time I was starting to worry. 'Uh reason for all this!' But I rolled up my sleeve to it. The robosuit eventually evolved from Verhoeven on the design, changing it, and making it. The whole process took about initially, Robo was like a Marvel Comic character exaggerated, heroic physique — but then I sketch something in pencil for Paul, talk then go back to sketching again. And then coming back to a very human-looking suit, with sort of elegant human musculature, human body in this robot, just like you can from *Metropolis*.

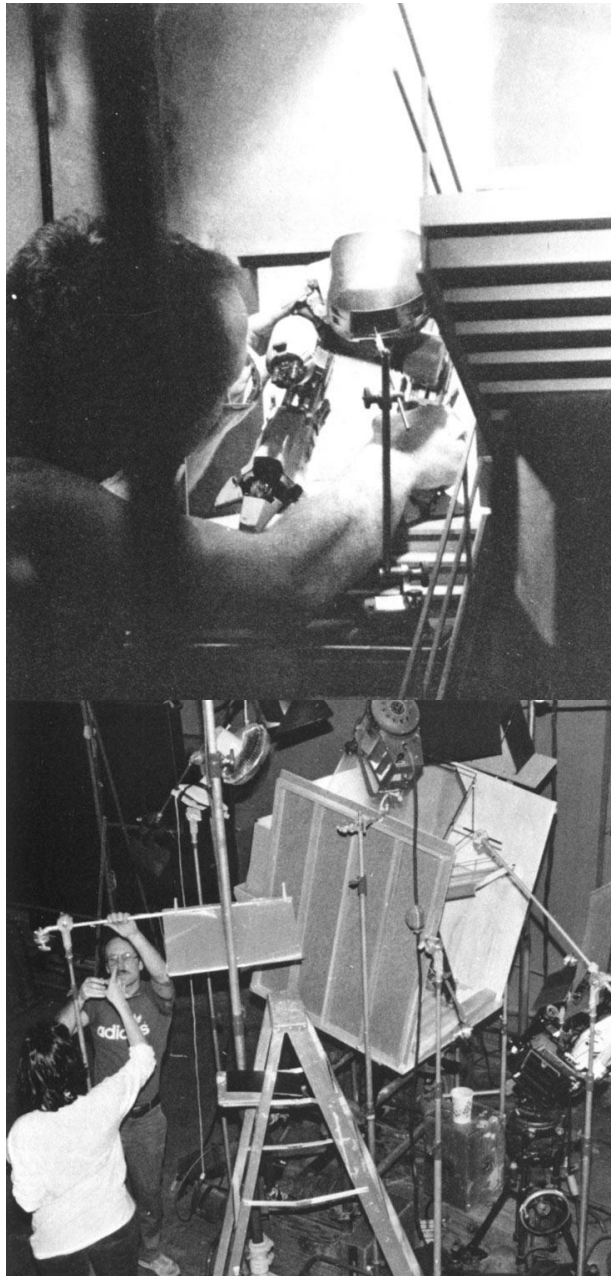
"At this point I decided to do the suit, there was an inner suit, which was colored through gaps in the carapace where flexibility, groin, midsection, back and behind are all which was made of foam latex. For the outer silicone molds off our sculptures. These were on a meal basis — arms, legs and so on. We took individual outer suit parts in a semi-rigid position some flexibility just in case Weller fell. There were about fifteen major parts to the arms and legs were two halves that were Weller's real limbs. The arms were mechanical bearing joints that turned around a central point of the elbows. A ring composed of tubing bridged the foam latex gloves with chest pieces were pretty simple — just like a thane. As for the legs and feet, those were urethane mechanically joined with aluminum. Finally, the outer suit is more or less means of an internal harness with velcro, joined the outer pieces to the inner suit.

A number of striking details further enhanced the suit. Connected to the calf and heel were marionettes that were rigged to slide along a ceiling a way that they actually moved up and down with Weller's footsteps. One-piece gloves were the feet were hinged urethane shapes like a sneaker. And although the rest of the suit was urethane, the visored helmet was constructed to fit snugly around Weller's face and jawline weighed about forty pounds and was as practical as possible," said Bottin. "It took to put Peter inside it, and for that reason I — who did all the great prosthetic work on *The Fly* — to head up my roboteam in I was a Texas-based special effects makeup artist who had worked on *The Texas Chainsaw*









Post Group in Hollywood. So one night we went over there with a 35mm still camera, set it up and just took mug shots of anybody who wanted to sit still for it. Then we transferred those slide images to video. Later we split the images up into various features — eyes, noses, mouths — as separate components for the Identikit. At the top of the Compulab sequence you see a robovision playback of Emil. That was a frame from the workprint. Then the shot drops back to a database of facial features that flip through until Robo has a match on Emil. The actual graphics used there were composited at The Post Group on a Harry, which is the newest computer video toy around. Like the Abekis, it allows you to work in digital with very precise control over chroma and matting and timing. It was actually the perfect device to build that scene with, because there were a lot of individual frame things they wanted to do, including adding a lot of little color bars with subcategories printed on them like 'background' and 'rap sheet' and so on. On the Harry we were able to go in and — to the very frame — do exactly what was in the storyboards. So it was a real precision way of working."

Having realized that he was once a human cop named Murphy, RoboCop drives to his old home to find the house empty and up for sale. As he painfully explores the memory-filled residence, a persistent real estate salesman delivers a never-ending pitch through a series of in-room video monitors — until, that is, RoboCop puts his hand through one. The video sales pitch was shot in Los Angeles at Intermix and then fed into the various monitors at the Dallas location site through three-quarter-inch decks. Later, during a postproduction insert shoot, the actual thrust through the screen was achieved with another Rob Bottin construct. "We had a whole separate device to puncture that monitor," recalled Dennis Pawlik. "A real Robo foam glove was mounted on the end of a huge eight-foot-long steel shaft, which in turn was mounted on two big bearings. On the back of the glove hand, outside of camera range, was a steel plate with a spike that actually punctured the set itself. Then on the opposite end of the armature from the glove was a cross-handle that allowed us to just grab hold of the thing and shove it forward. With its weight and construction and that spike, you could have pushed right through a wooden door with that thing. It was like a battering ram with a roboglove at the end of it."

Determined to bring his killers to justice, RoboCop tracks the Botticker gang to a huge cocaine refining plant — a set erected in a downtown Dallas warehouse — and pushes his way through a breakaway door. A wild shootout ensues, during which RoboCop's targeting mode allows him to effortlessly pre-target and gun down eighteen separate criminals. Dale Martin, responsible for the film's many mechanical effects and pyrotechnics, also developed a means of simulating ricochet hits off RoboCop's body armor. "We used a compressed air gun designed to fire

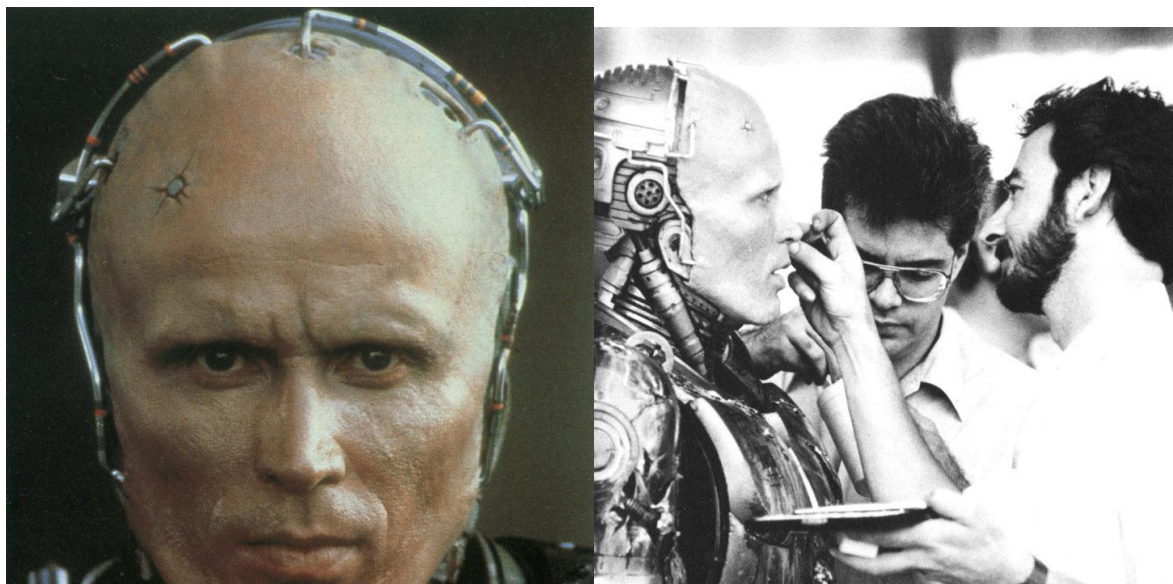
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In the final showdown between RoboCop and the Botticker gang, Emil Antonowsky (Paul McCrane) crashes his van into a vat of toxic waste and emerges with flesh melting away from his body. Already beyond hope, the walking horror begs partner-in-crime Leon Nash (Ray Wise) for help. / The second phase of a two-stage appliance makeup designed and created by Rob Bottin. / Weapon drawn, RoboCop advances on Botticker who has overturned his car in a pool of water. / Pinned under a load of steel beams, the cyborg lawman is seen as defenseless by the evil Botticker who attempts to skewer him with a sharp pole. As the killer leans over him, though, RoboCop unleashes his terminal strip and thrusts it into Botticker's neck. Paul Verhoeven positions the

Chiodo, meanwhile, was in charge of the puppet armature which featured collar joints machined by Tibor Sezar and other joint-work armature parts provided by Bill Head. Since the photographic compositing was to be done in video, the puppet was shot against a four-by-eight-foot frontlit Ultimatte blue screen and merged electronically with background plates also shot by the Chiodo unit. "Basically, we just did a guerrilla shoot. We took the trunk hood off a Mercedes Benz, climbed in with an old Mitchell camera, drove over to downtown L.A. and just cruised along the streets shooting up at the buildings."

As the Chiodos were also busy preparing for their upcoming *Killer Klowns* project, the actual hands-on animation of the dinosaur was given to Don Waller, with Steve Chiodo carefully blocking out the puppet movements as animation director. The photography was handled by John Hunyck, who had also shot the plates. "The very last shot demanded an angle of the city that we really couldn't get because of time limitations," Chiodo commented. "So we went out with Hunyck and a 4x5 Switar still camera and photographed the various buildings we had already filmed — but this time shot them in black-and-white. Then we had photo blowups made, cut them up, backed them with wood, hand-painted them in water colors and stuck them in staggered locations on a four-by-eight-foot piece of flat plywood. What we wound up with was a forced perspective miniature cityscape with a forced perspective road that the dinosaur could stand on in the middle. We have this speedrail pipe-rig animation stand in our studio that is so versatile we can make any kind of set that we want out of it — and what we settled for was this quick-and-easy, photo blowup, multiplane forced perspective set that we were able to photograph in conjunction with the dinosaur against blue."

"Big is back!" proclaims the commercial as the Chiodo dinosaur's eyes bug out comically in response to a huge SUX rolling up behind it. The bugging eyes were accomplished by a replacement technique, with slightly larger eyes being put into the puppet's head every four frames and photographed until the full effect was achieved. Then the sequence was reversed to make the eyes appear to be shrinking back to their normal size. "The SUX car was a second element," concluded Chiodo. "We shot that just off the side of the road against a clear blue sky up on Mulholland Drive. Then our postproduction guy, Chris Ross, coordinated all the video compositing at a company called Compositing Images System in Hollywood."

"I did only one thing on the 6000 SUX commercial," noted Peter Conn. "In the last scene, the actual car comes up in the



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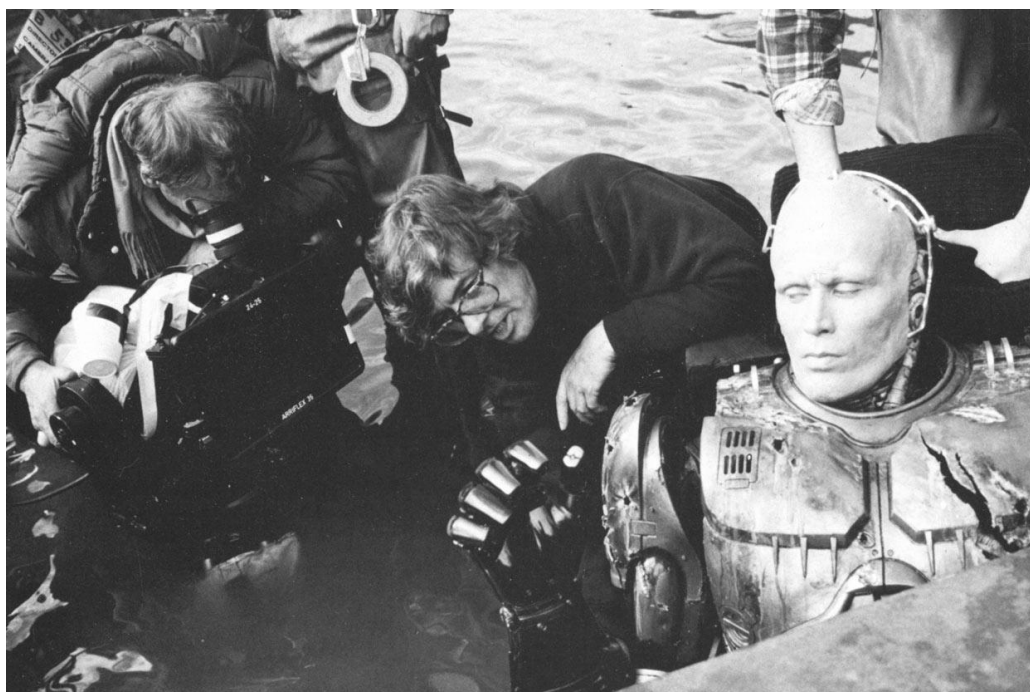
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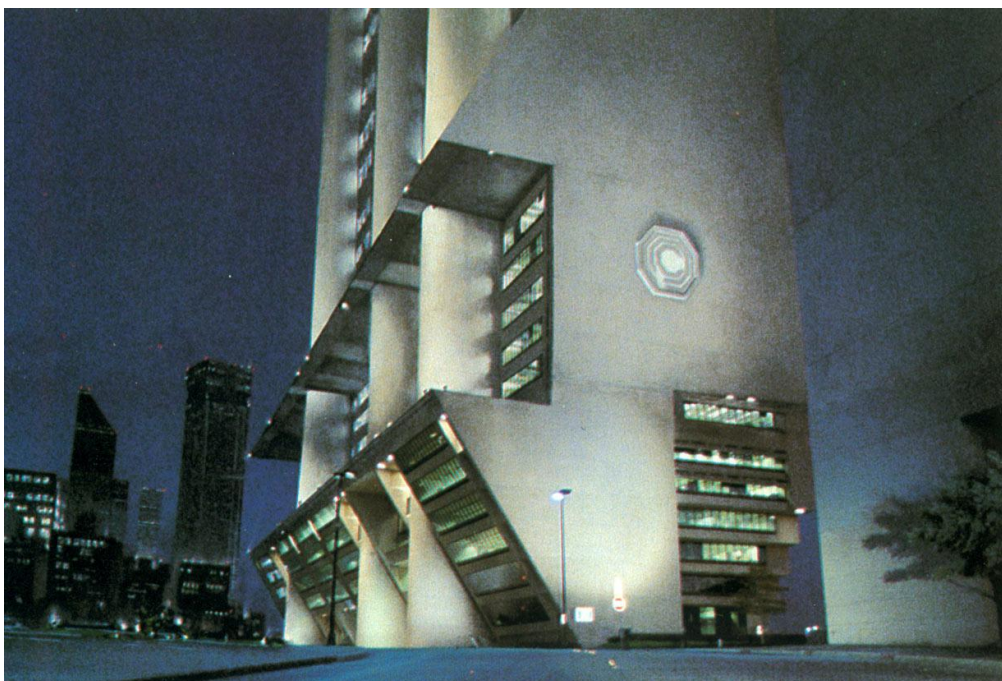
In the final showdown between RoboCop and the Botticker gang, Emil Antonowsky (Paul McCrane) crashes his van into a vat of toxic waste and emerges with flesh melting away from his body. Already





CINEFEX.





Jones and ordered to destroy RoboCop — moment, is in the abandoned steel mill pi for the first time. "There are two separate screwing his helmet," said Jon Davison. "you see a screw ratcheting out of Robo's h by Rob Bottin and shot at Peter Kuran's faci duction. The wider angle was shot on locati the helmet, Peter's face and a screw that lo right out of his head. It's a great illusion, l simply. Dale Martin prepared a trick drill running through the center of it. That way hidden inside the drill, and when Peter p would rotate out. The tip of the drill was pu helmet, Peter slowly pulled the drill away screw really looked like it was coming out

Picking up a discarded piece of tin, Lew distorted reflection of his human visage gra ical brain and skull — another makeup illu Working from a lifecast of Peter Weller, a lation was fashioned to impart an overla facial features with the metallic skull behi a fiberglass half-helmet devised to fit tigh of Weller's head. To suggest a bizarre hyc system bridging man and machine, a num num tubes were then attached to this fiber run into the edges of the foam latex facial a mechanical collar — also of fiberglass — around Weller's neck. The finishing touch v hole in RoboCop's forehead — a grim remir tality. "Stephan Dupuis was responsible for j on Peter every day," said Jon Davison, "and could sometimes take as long as eight hour no disrespect to Rob here, because Rob re terrific makeup — you can have terrific prc are not put on correctly you lose half the t very wise in assigning Stephan to that. He a did a great job."

Due to the rigors of daily shooting, a individual 'third act' makeups were fabricati and sent on to the RoboCop location. "Th was really tricky," said Fernando Favila. "P and in great physical shape — he's a maratl ies martial arts and things like that — so his Which meant that Stephan was faced every c of blending a smooth texture onto a sm some kind of wrinkled, bloody surface tha lot more forgiving. He really had nothing with. It was subtle, very painstaking work, Bart Mixon's help — did an incredible job.

long — which were taped right to the painting itself. Then I'd get in there between frames and push them along at about a sixth-of-an-inch per frame per shot."

With Jones decidedly out of the picture, silence reigns in the boardroom. Then the Old Man adjusts his tie and smiles. "Nice shootin', son. What's your name?" "Murphy," the cyborg replies, bringing *RoboCop* to a punchy end. Originally, though, *RoboCop* had a somewhat different conclusion. An additional post-script shown at the first preview screening continued the storyline, although this footage was never finessed past the rough-cut stage. The first deleted sequence followed the existing tagline with another MediaBreak announcement that popular television comic Bixby Snyder — whose obnoxious "I'd buy that for a dollar!" punctuates the film — had been convicted on a morals charge. Evidently Bixby had been caught swapping sexual favors for appearances on his television show, *It's Not My Problem*. The broadcast then cut to a hospital bed for a few words with officer Anne Lewis — alive and rapidly recuperating. Had it survived to the final cut, the sequence would have silenced rumors that Lewis was to be rebuilt as a female cyborg for *RoboCop II*. Finally, the last deleted scene featured RoboCop himself cruising the streets of Old Detroit — ever vigilant, ever alert, always ready to stop another crime. With the decision to cut the aforementioned footage, the film now ends on a simpler, more upbeat note.

"Now that the film is so popular," Phil Tippett reflected, "everyone's kind of forgotten how difficult it was to make. But it was. For any number of reasons, *RoboCop* was a very tough shoot. Yet I still really enjoyed working on this picture. And I know a lot of other people who feel the same way. It was an unusual project. Not only did it have an excellent production team — which is a good reflection on Jon Davison who pulled everyone together — but there was also very little ego involved. Everyone was just concerned with getting his job done in the best way possible to make the picture work. In light of some of the pictures I've worked on in the recent past, that's a refreshing attitude. Most movie people, it seems, have been involved in the business for years, and to them it really is just a business — they're not interested in filmmaking anymore. *RoboCop* wasn't like that — which to me made all the difference in the world. Honestly, from the bottom of my heart, I can't tell you how meaningful it was to be involved finally in a motion picture where people really cared."

Paul Sammon is a writer-producer-director with more than two dozen documentaries and one feature film to his credit. As founder of Awesome Productions, he has handled specialized publicity for such films as Conan the Barbarian, Dune and Blue Velvet and has also produced a behind-the-scenes video







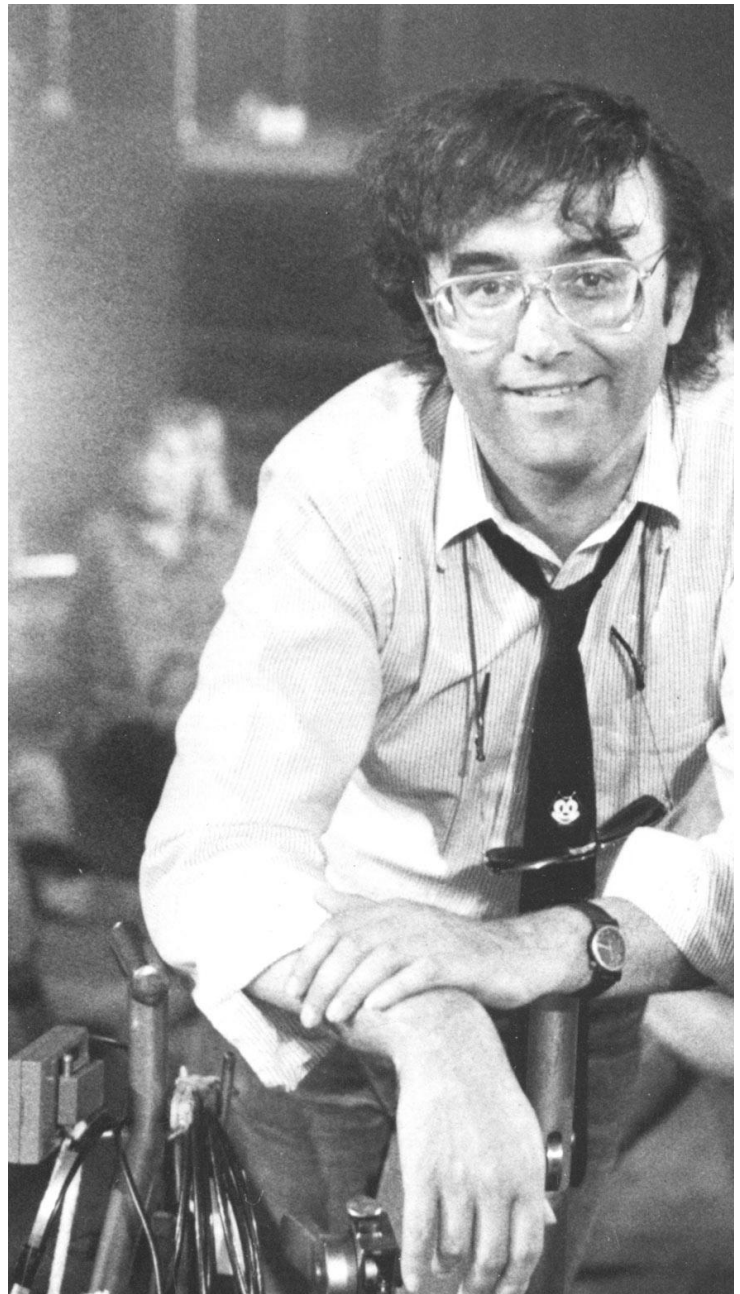
Inside Martin Short

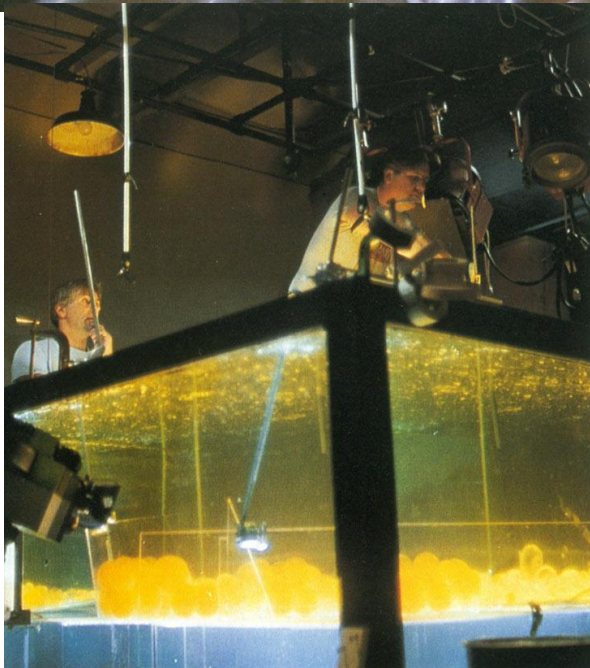
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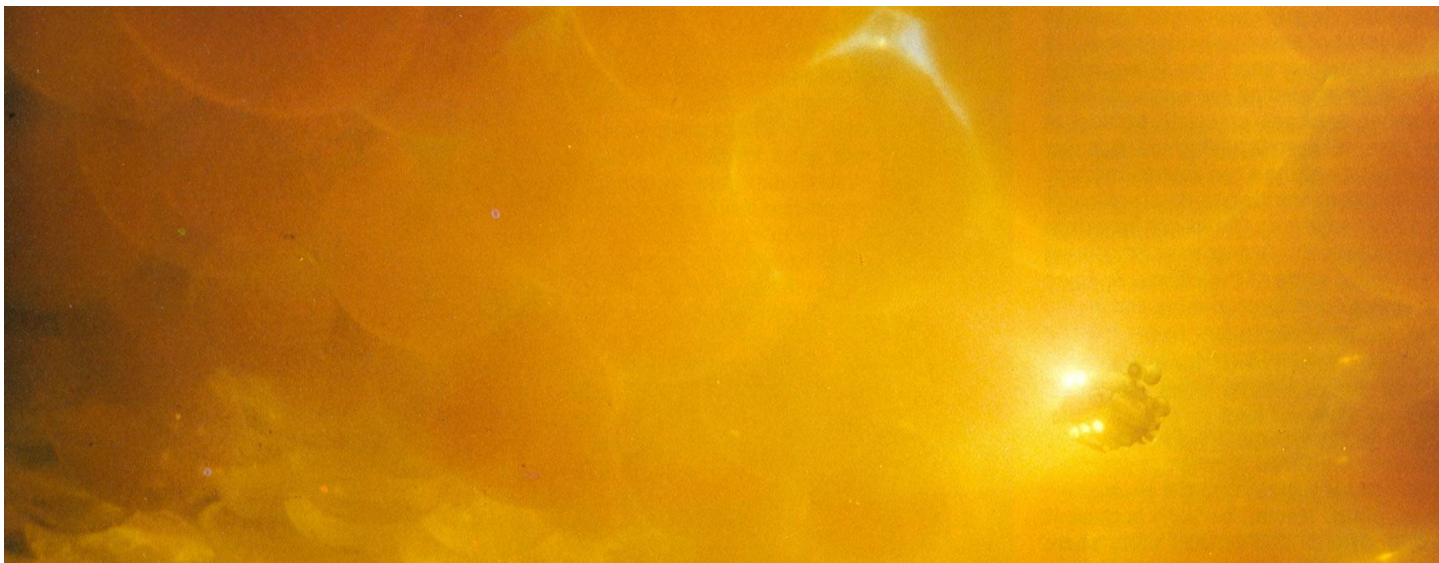
shop supervisor William George. "The photographs in the book were all nicely lit and beautiful and awe-inspiring, and they provided every reference we needed. (Visual effects art director) Harley Jessup and I had gone to a couple of hospitals doing research and one of the things we learned was that books on medicine are not about nice, healthy, active people — they're about horribly diseased, sick, awful people. It was really depressing, especially since we were trying to find something beautiful and useful for our purposes. As a result, the most difficult part of the sets was the art direction, because we had to make these things look organic and we had to make them look alive and well. We discovered that it was incredibly easy to make something look cancerous — if it was red and lumpy it looked diseased. But making it look healthy was tough. We went through an awful lot of trial and error. At one point we tried shooting a couple of cool sets and it just didn't work — organic-type things rendered in cool colors tend to look dead. As it turned out, we discovered that a lack of texture and very subtle color changes gave the best look."

To achieve an ambience that was both believable and wondrous, Dennis Muren encouraged considerable preproduction experimentation. "Dennis was really interested in getting as many visual ideas as possible before we got started," explained Harley Jessup. "To help things along, he brought Richard Vander Wende on for a lot of the early concept work. Richard is a great artist and his work was sort of a taking off point for everybody's thinking. I did some work on the look of the effects at the same time. Throughout the process, Dennis encouraged us not to worry too much about the script or about how things would fit together. He even told us not to worry about how things might eventually be done. Instead, he wanted all the emphasis to be toward making an interesting sequence, especially because at that point the producers were still open to adding and changing things around to accommodate getting a real interesting look for the film. At the same time I was working on the storyboards — which went through a real evolution as far as getting things pinned down to a finalized design. Bill George was also coming up with ideas on how to realize some of the effects. So there was a lot of innovation going on in Dennis' mind and in the minds of the model shop personnel as to how to get it all to work together. It would get to be a real puzzle, which was fun — and the show moved so quickly that we had a new puzzle every day."

In addition to imbuing the sets with a quality of believability, it was important to validate the film's premise as much as possible. "We really wanted to get away from the soundstage look of *Fantastic Voyage*," stated Muren, "partially because it involved an awful lot of horizontal and vertical shots where everything was either going up and down or running level within the body. That worked in *Fantastic Voyage* because the div







Model shop supervisor William George fills a holding tank which feeds into an oversize syringe representing the Kraken II's mode of injection into supermarket clerk Jack Putter. / On stage, Bob Cooper positions another section of syringe against a large-scale piece of fabric for a scene that transpires within the jacket pocket of scientist Ozzie Wexler. / To depict the pod's principal mode of high-speed transportation, a giant artery was fashioned from tubular sections of translucent urethane and then placed inside a plexiglass trough fifty-seven feet long. During photography, water laced with simulated blood cells was pumped through the system. / First unit effects cameraman John Fante directs a plexiglass-encased camera — equipped with video assist — into the

little work, if any, done afterwards."

Aside from establishing an appropriate overall look for *Innerspace*, the number one priority was determining a workable design for the film's essential mode of conveyance — the submersible pod manned by innerspaceman Tuck Pendelton. "We looked at a lot of submersibles and a lot of science articles," explained Joe Dante. "Jim Spencer, the production designer, was convinced that Tuck's pod needed to look like these people really didn't have a lot of money and went out and got the one thing that they could afford to use and modified it. With that in mind, we built a full-sized pod for live-action filming in Los Angeles, while ILM took care of the miniatures. The full-sized pod had an interior set and an exterior set — we couldn't do it all in one because the electronic work for all the monitors hung out the front and would have spoiled the clean round lines of the exterior. In any fantastic movie you have to take a premise and decide that if this premise is true then all the rest of the elements have to be realistic within that framework. So we tried to make the pod as much like it would be in reality as possible. We even went so far as to hire scientists from the Jet Propulsion Laboratory as extras for the initial laboratory scenes. I realized that because I'm not a scientifically oriented guy, I wouldn't necessarily know what buttons to push and so on; but having the scientists there created the feeling that these people really knew how to use the equipment. So it's a much more realistic laboratory than moviegoers might realize. Igoe's pod and the bad guys' laboratory, on the other hand, are completely unrealistic — which was on purpose. We wanted to say that the good guys don't have any money, but the bad guys have lots of money — just like it is in real life."

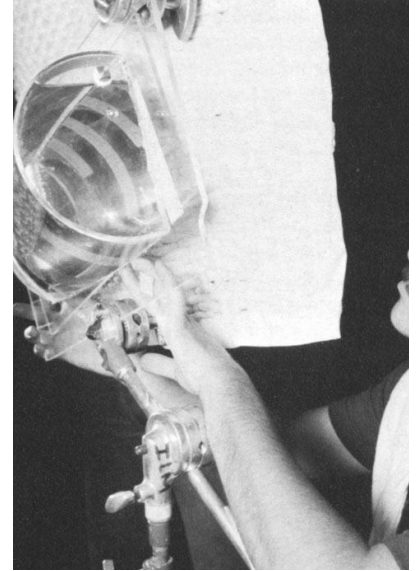
The design of the pods was the first assignment for Bill George and his model shop crew. "Since Tuck's pod was such an important part of the story, it was a priority to get it finalized. I did four different prototypes from designs by Harley Jessup and John Bell to present at a meeting to Joe Dante, producer Mike Finnell and Jim Spencer. The prototypes were very small and very crude — just made out of styrene model kits — but we wanted them to be as finished as possible to help visualize what the designs would look like in three dimensions. Ultimately, they chose the one that John Bell designed — which looked very similar to the *Thunder Road* from *Explorers*. Of course, changes were made to alter its appearance, but basically they wanted that same sort of clunky look. The concept was that Igoe's pod was built by people who had tons of money and it was supposed to be real slick in design. Tuck's pod, on the other

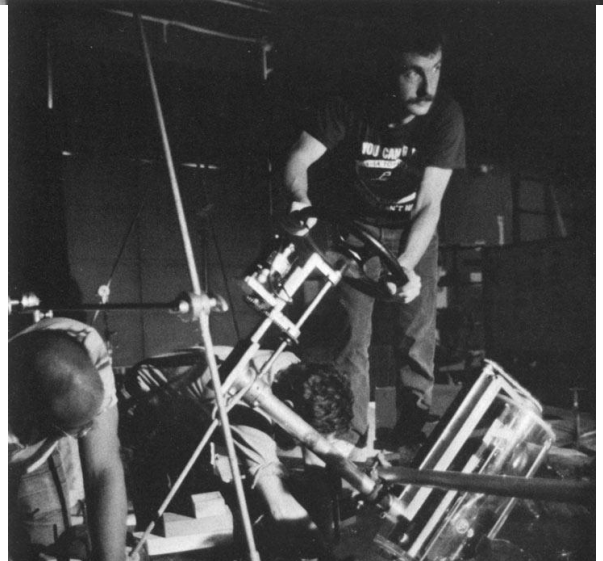


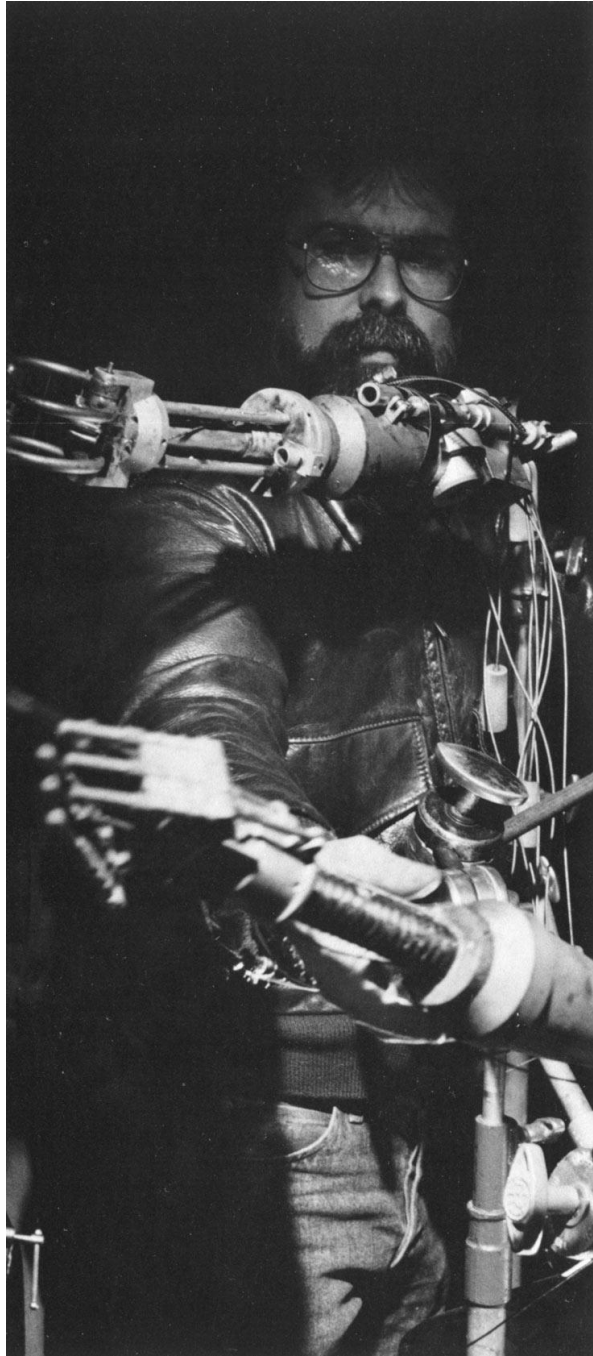
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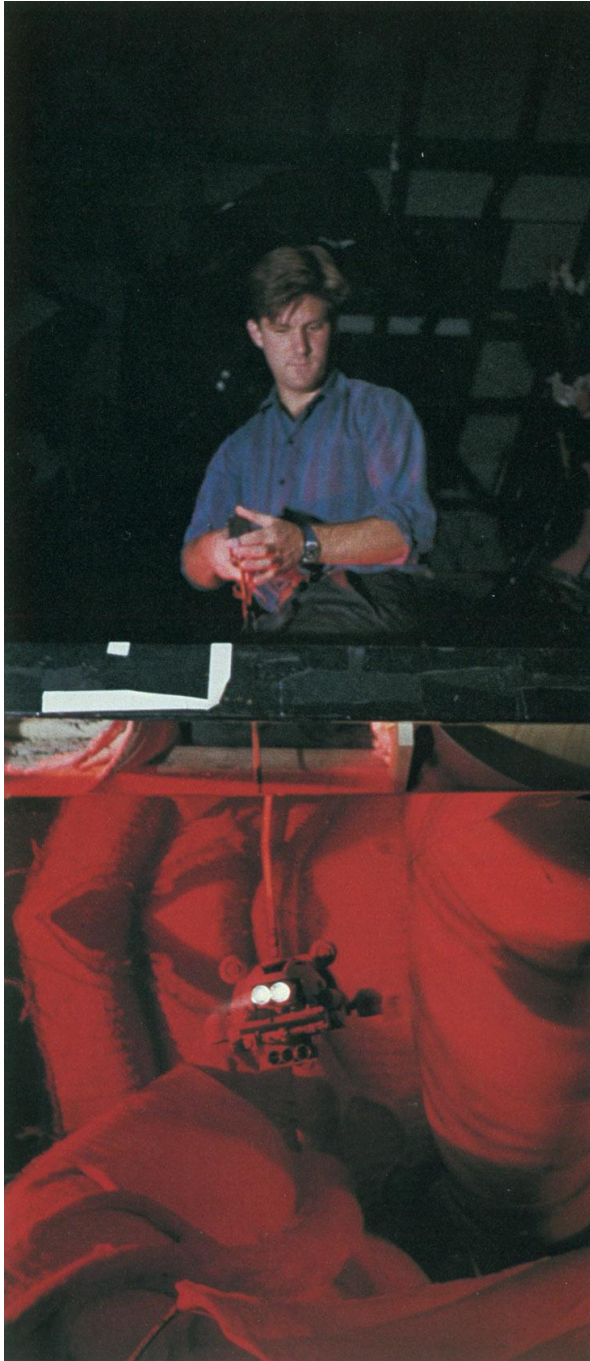
Model shop supervisor William George fills a holding tank which feeds into an oversize syringe representing the Kraken II's mode of injection into supermarket clerk Jack Putter. / On stage, Bob

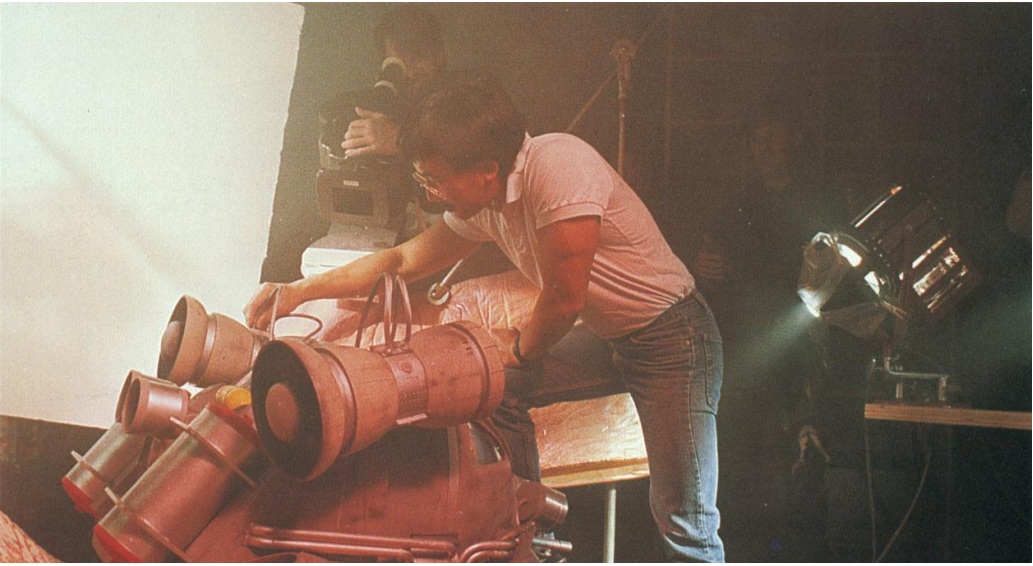




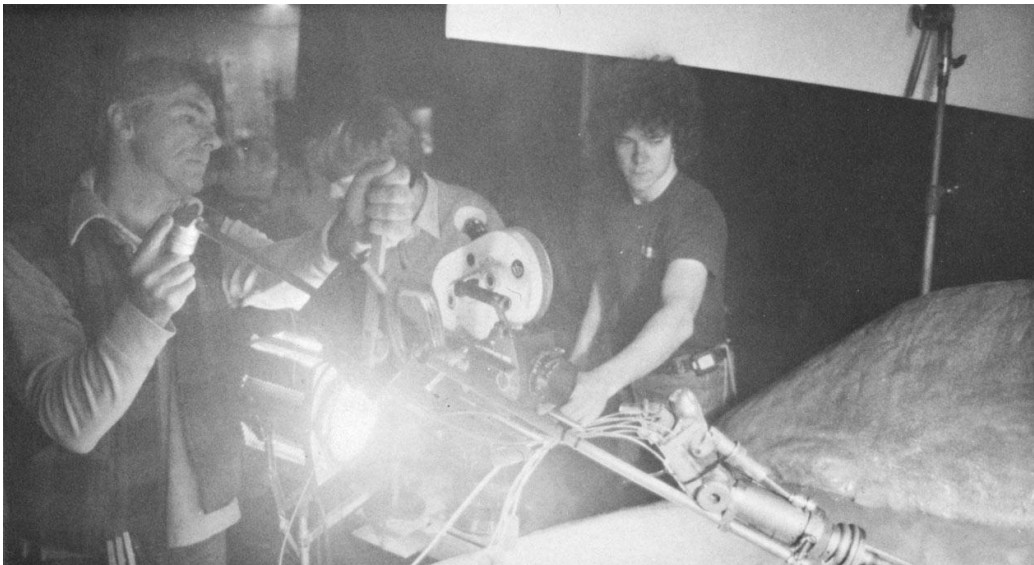








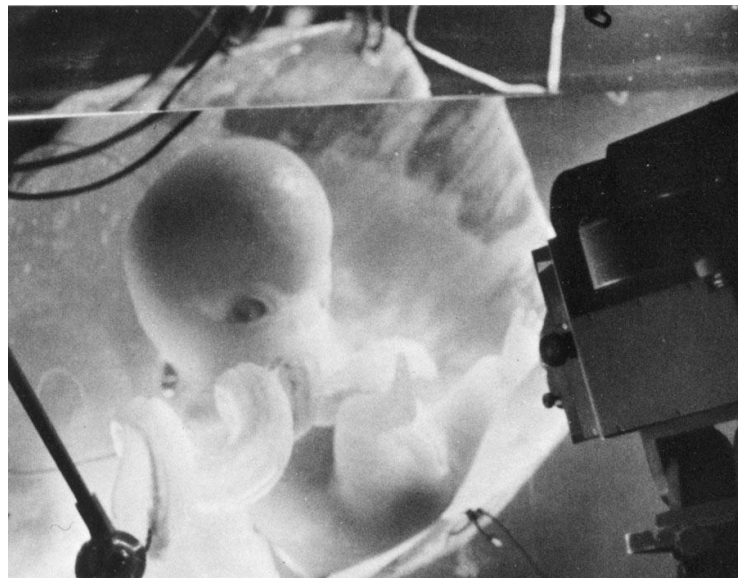




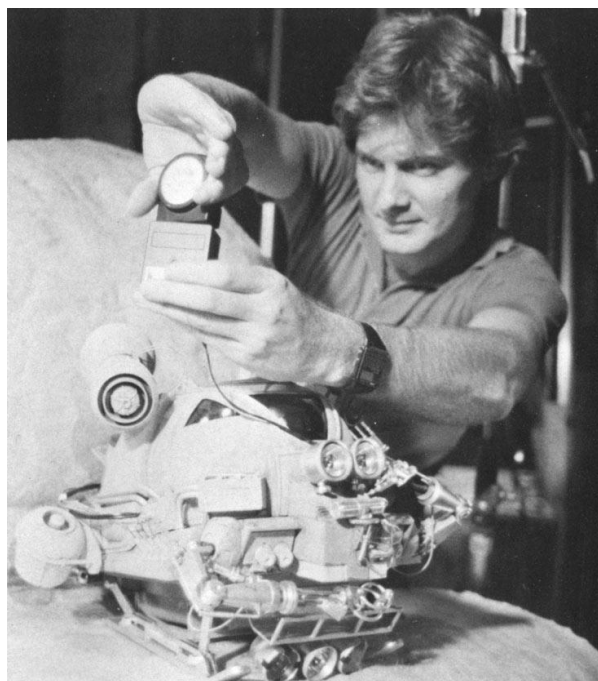
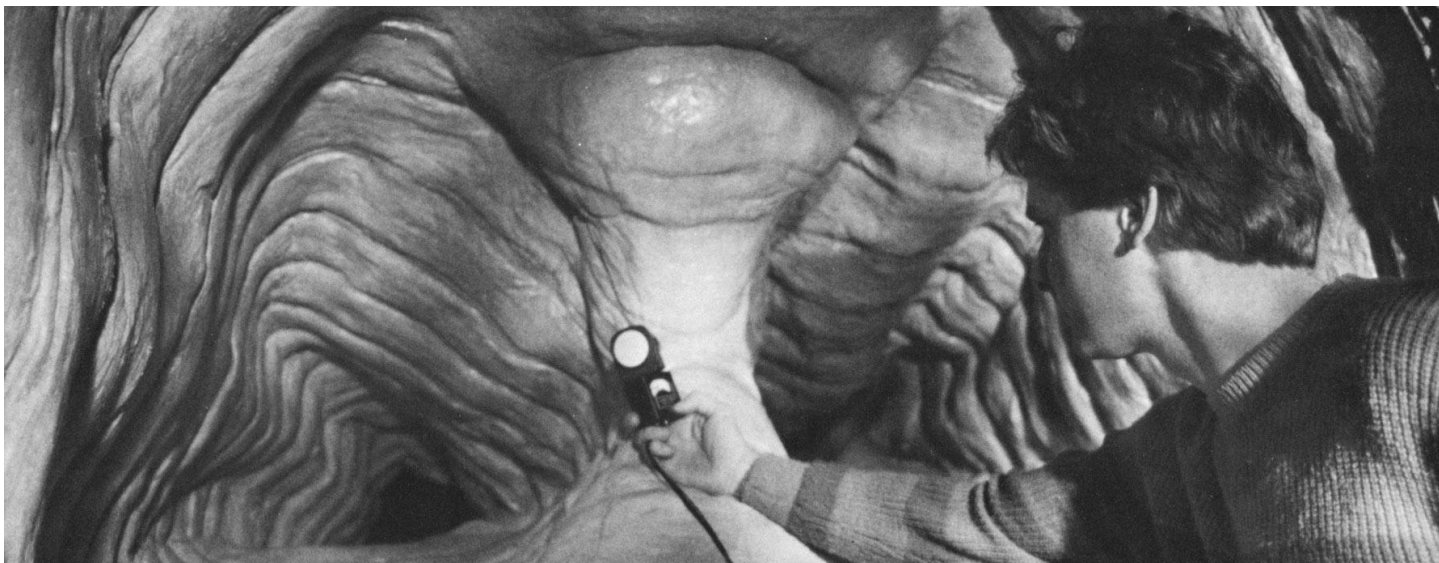
ziplock and there were instances where we had the pod entering or exiting the enclosure. Those were done, depending on how good our angle was, by running the umbilical cord out the opposite direction of the camera. We had basically the same situation in the cloud tank where we were also required to run external power in addition to puppeteering wires. The umbilical was either run out and into a dark area of the frame or just straight back through the set if there was a lot of movement in the shot. In either case, we had to plan everything very carefully so that the umbilical would not be seen. Frequently, we would have a puppeteer on the umbilical as well as the pod, just to keep it out of the frame. A lot of times we would shoot the pod upside-down so that the wires — if they were seen at all — would not be as noticeable because they were going down rather than up. Generally the light would come from above in most shots, and when we had wires going right through that light it was very difficult to get rid of them. So we set up the lighting in such a way that it would be hotter at the bottom than it would be at the top. At the top it would look dark, really black. That way, if we had any problems of seeing through the opening or if there were air bubbles — which in turn became like mirrors — we could avoid picking that up on camera. The intention from the beginning was to do as much in-camera work as possible so that we could avoid opticals. It was not completely successful, but it was enough so that our stage schedule was essentially on time — we never worked a Saturday, which I think is a first for almost any effects company."

Fante and crew frequently worked directly with Bill George and Harley Jessup in preparing for the various shots. "Often-times a set would arrive and be put into the cloud tank, and then the consensus would be that it didn't look very good. So one of the techniques that we used was to pour slime over everything to give it a kind of organic quality. Someone in purchasing called the Mattel Toy Company and found that we could purchase a fifty-five gallon drum of a product that is actually called 'Slime.' This particular batch of Slime was too slimey to package and sell to children, so they were going to throw it out. Instead they gave it to us. We had a lot of fun with it. Harley would go in at the very last minute and put a good dose of green slime all over everything, just to give it that organic look. We used it both underwater and above water. If we were shooting something above water, it would help to create the equivalent of spritzing it with water. The slime had a tendency to move, however, so we had to shoot quickly before it all oozed away."

Another technique came about at the suggestion of model-maker Claudia Mullaly — a generous dollop of 'diamond dust' was added to enhance the magic of the sets. "Diamond dust is actually a very fine glitter used commercially as a component







ferent patterns that gave just the extra touch needed to make the shots magical. The diamond dust worked much better than diatomaceous earth, which we used in some earlier shots to create what was essentially underwater smoke."

Sets and set pieces were frequently recycled for use in different shots. "We'd bring just about anything into the cloud tank and put the pod in there with it," said Fante. "Some of that kind of footage is in the movie; some of it isn't. But it was very challenging in the sense that there was really no forethought for some of the shots. Quite often we were pushed into a situation where we needed to come up with a generic shot, and so Harley and Bill would throw something together and we would light it and put the pod in and the shot would end up in the movie. One day Harley Jessup walked in with the lining of his trench coat and put *that* in the cloud tank. It was a furry substance, and nobody knew exactly what part of the body we were in, but it looked good."

Certain shots, however, proved unattainable in water and so on-stage bluescreen work was employed. "Although we always assumed the majority of shots would be achieved in water," said Bill George, "it was sure a lot easier to shoot things in the air. Especially changes. If we set something up on the Dykstraflex, for example, and then found that it needed to be repainted, all we had to do was go on in and repaint it. But if the same thing happened in water, we'd have to drain the tank, dry the model, paint it, fill the tank again — and then perhaps find that it was *still* not correct. Also, certain other complications occur in water. One of them is that either the water or the glass of the tank washes out all the color. Consequently we had to overcompensate for everything — make the colors and contrast strong. Sometimes it would work and sometimes it wouldn't. The stage crew discovered that when the lights were outside the cloud tank shining in, the whole set was bathed in green light. So toward the end they started using a filter on the light — it was a purple gel minus green — which really helped a lot."

The rod puppet pods — photographed against bluescreen by Don Dow and Harry Walton — were designed to be as lightweight as possible to facilitate ease in puppetry. Cast out of rigid foam, the pods were covered with a skin of polyester, measured approximately eight to twelve inches in length and were shot entirely in air. "The rod puppet pods were actually pretty light," observed Pete Kozachik. "And that was important because originally some of the shots involved quite a bit of action. The puppeteers would operate the pods via rods from beneath and they had to come up with some complicated

As Tuck's dwindles the high-disrupted experime own chan lgoe (Verr inject hin orders to remove a and destr and its pi shop, Lan through a lgoe pod. innerspac begins in the two p perilous r passagew stomach. cameram takes a liq juncture i wide mas likewise f follow-on one of th



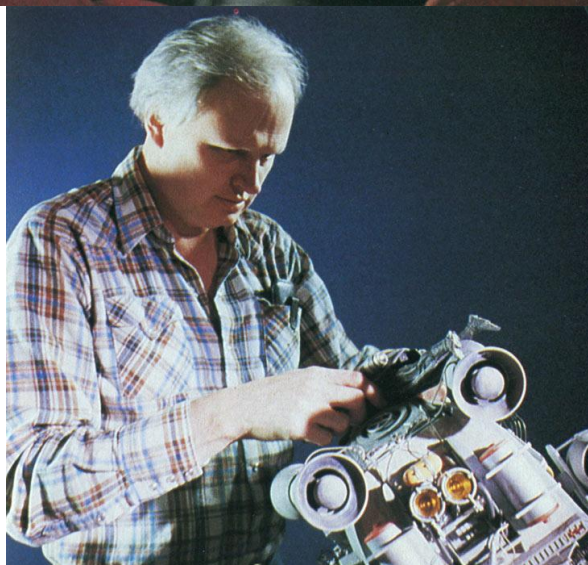
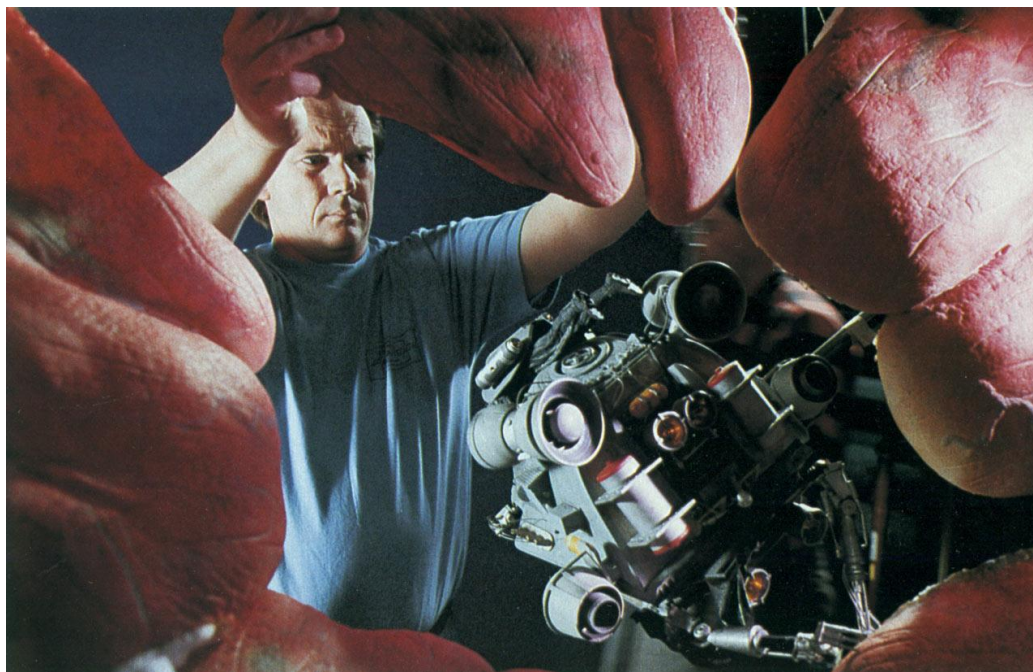
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A further element was also added to the stomach battle composites. "Dennis Muren wanted to have some food coming up out of the water — a concept he referred to as 'breaching burritos,'" said Bill George. "So we loaded an air cannon and shot food off in front of a blue screen. We went out and bought all these Burger King hamburgers and peaches and tomatoes, and we squished them all up until it was really disgusting. It was pretty hilarious, actually. Here we were, a company with all kinds of impressive technical equipment, flying food across the screen. It could probably have been done on the set, but it was another one of those sequences where there were a great many other things happening at the same time. Doing it this way gave us more control — we could adjust the film speed independent of the breakers."

"We had a lot of fun shooting the breaching burritos," said John Fante, "and they were probably the funniest dailies we had. Harley Jessup was responsible for the material we used, placing all sorts of things — anything he could find at the grocery store — into an air mortar and shooting it at high-speed. I think there are two shots of mine in the movie where there is a wide view of the stomach and the valve at the top with the pod in it. Don Dow shot the lower section which had a couple of splashes of tomatoes or guavas or something. It all tied together very well and I credit Dennis for having the patience and vision to put it all together in an artful way."

As the two pods grapple on the precipice, the evil Igoe — equipped with high-tech, mechanically-clawed submersible armor — leaves his pod and directly attacks the *Kraken II*. Eventually he loses his grip, though, and falls screaming into the stomach acid. For this scene, the third-scale *Kraken II* was shot against bluescreen along with a two-foot-tall articulated Igoe puppet. One dissolve later and the twelve-inch pod is seen in a wider shot, floating in the pool of acid as the villain — still clinging to the outside — slowly disintegrates.

Managing to escape from the stomach, Tuck maneuvers his oxygen depleted craft into Jack's lungs. "The sequence inside the lungs started out a lot like the stomach battle," said Kozachik. "In fact, it started out *too* much like it — both sets had



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"We had a lot of fun shooting the breaching burritos," said John Fante "and they were probably the funniest dailies we



a sense of it not being a landscape or t which was something Dennis was definitely give it a more random look, we employ really created a sense of vertigo. I also in sync light so optical could tell when the

The crew had some trouble getting the function properly. "The elements of the started out as latex castings taken from the onions mounted on a two- by three-foot Kozachik continued. "To get the movement thinking of either rigging them with balloons them high-speed or using animation; but seem to work. So the ultimate solution of really light latex foam — like rubber and shoot them underwater against bluescreen. I used a live-action field recorder, the Fante ing two different villi sections that the n — one for in front of the pod and one Meanwhile, Bob Hill, Tom Rosseter, Mike the night crew for a while doing bluescreen sequence, it was a matter of making the attached to those fingers — which was creating parts of the programming. I tried a bowling ball being moved along by I could tell there was some weight and that to hold up. Occasionally it would slip and to be able to ultimately look in the camera on the joystick without regard to having camera move. That way I could just concentrate of it. I also wanted to see the fingers move. So I got a contrasty black-and-white film. It ended up as a clear piece of film with blue. I loaded it into the Vistacruiser so I could running in the gate and program — first I on the camera roll that would exactly counter what was happening on the plate. Then watching the viewfinder, minus the camera move, the jostling movements."

From a position in Jack's upper respiratory the *Kraken II* are at last expelled by way of The errant microchip is replaced and the process reversed. All ends well for our hero villains the future seems ... well, short. Sub reduction in their own miniaturization team of Victor Scrimshaw and Margaret Ca



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